AMENDMENT TO THE CLAIMS

The listing of the claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS

A listing of the currently pending claims is presented as follows:

1. (Original) A method of error correction coding data wirelessly transmitted through multiple transmission channels, the method comprising:

receiving a plurality of data streams for transmission through spatially separate antennae;

selecting at least one bit from each of a plurality of the data streams forming a first bit grouping;

selecting at least one other bit from each of the plurality of the data streams forming a second bit grouping;

coding the first bit grouping;

coding the second bit grouping; and

transmitting the coded first bit grouping and the coded second bit grouping.

2. (Original) The method of error correction coding of claim 1, wherein selecting at least one bit from each of a plurality of the data streams forming a second bit grouping comprises selecting a plurality of other bits from each data stream.

3. (Original) The method of error correction coding of claim 1, wherein the selecting at least one bit from each of a plurality of the data streams forming a second bit grouping coprises selecting a plurality of other bits from each data stream.

4. (Original) The method of error correction coding of claim1, wherein each data stream is transmitted from a corresponding spatially separate antenna.

5. (Original) The method of error correction coding of claim 1, wherein the plurality of data streams are generated from a single primary data stream.

6. (Original) The method of error correction coding of claim 1, wherein coding the first bit grouping comprises coding the first bit grouping according to at least one of Reed-Solomon coding, turbo coding, convolutional coding and low-density parity check coding.

7. (Original) The method of error correction coding of claim 1, wherein coding the second bit grouping comprises coding the second bit grouping according to at least one of Reed-Solomon coding, convolutional coding, turbo coding and low-density parity check coding.

8. (Original) The method of error correction coding of claim 1, wherein the data streams comprise N-QAM symbols.

9. (Original) The method of error correction coding of claim 8, wherein selecting the first bit grouping and the second bit grouping is based upon the significance of the bits within the N-QAM symbols.

10. (Currently Amended) The method of error correction coding of claim 9, wherein selecting the first bit grouping and the second bit grouping include selecting a plurality of bits from the N-QAM symbols from the plurality of the ~~bit~~ data streams.

11. (Original) The method of error correction coding of claim 9, wherein a redundancy in coding the first bit grouping and coding the second bit grouping is dependent upon the significance of the bits within the first bit grouping and the second bit grouping.

12. (Original) The method of error correction coding of claim 8, wherein the N-QAM symbols of the data streams are modulated on simultaneously transmitted multi-carrier signals after the bits of the N-QAM symbols have been coded.

13. (Original) The method of error correction coding of claim 12, wherein the multi-carrier signals are orthogonal frequency division multiplexed (OFDM) signals.

14. (Original) A method of error correction decoding data wirelessly received through multiple transmission channels, the method comprising:

receiving a plurality of data streams received through spatially separate antennae;

selecting at least one bit from each of the plurality of the data streams forming a first bit grouping;

selecting at least one other bit from each of the plurality of the data streams forming a second bit grouping;

decoding the first bit grouping;

decoding the second bit grouping; and

constructing decoded bit streams based upon the decoded first bit grouping and the decoded second bit grouping.

15. (Original) The method of error correction decoding of claim 14, wherein selecting at least one bit from each of a plurality of the data streams forming a first bit grouping comprises selecting a plurality of bits from each data stream.

16. (Original) The method of error correction decoding of claim 14, wherein selecting at least one bit from each of a plurality of the data streams forming a second bit grouping comprises selecting a plurality of other bits from each data stream.

17. (Original) The method of error correction decoding of claim 14, wherein each data stream is received from a corresponding spatially separate antenna.

18. (Original) The method of error correction decoding of claim 14, wherein decoding the first bit grouping comprises decoding the first bit grouping according to at least one of Reed-Solomon decoding, turbo decoding, and low-density parity check decoding.

19. (Original) The method of error correction decoding of claim 14, wherein decoding the second bit grouping comprises decoding the second bit grouping according to at least one of Reed-Solomon decoding, turbo decoding and low-density parity check coding.

20. (Original) The method of error correction decoding of claim 14, wherein the data streams comprise N-QAM symbols.

21. (Original) The method of error correction decoding of claim 20, wherein selecting the first bit grouping and the second bit grouping is based upon the significance of the bits within the N-QAM symbols from the plurality of the bit streams.

22. (Currently Amended) The method of error correction decoding of claim 21, wherein selecting the first bit grouping and the second bit grouping include selecting a plurality of bits from the N-QAM symbols from the plurality of the ~~bit~~ data streams.

23. (Original) The method of error correction decoding of claim 20, wherein the N-QAM symbols of the data streams are modulated on simultaneously transmitted sub-carrier signals.

24. (Original) The method of error correction decoding of claim 23, wherein the multi-carrier signals are orthogonal frequency division multiplexed (OFDM) signals.

25. (Currently Amended) A method of multistage error decoding, comprising:

receiving a plurality of data streams through spatially separate antennae;

generating first level bits based upon decoding of first common bit groupings within the received data streams;

generating second level bits based upon:

subtracting the first level bits from the received plurality of data streams;

decoding ~~of~~ second common bit groupings within the received data streams; and

combining the first level bits and the second level bits forming multistage decoded bit streams.

26. (Original) The method of multistage error decoding of claim 25, wherein the first common bit groupings and the second common bit groupings are different groups of bits having different levels of significance within symbols of the data streams.

27. (Original) The method of multistage error decoding of claim 26, wherein the symbols of the received data streams are N-QAM symbols.

28. (Original) The method of multistage error decoding of claim 27, wherein the N-QAM symbols of the data streams are modulated on simultaneously transmitted multi-carrier signals.

29. (Original) The method of multistage error decoding of claim 28, wherein the multi-carrier signals are orthogonal frequency division multiplexed (OFDM) signals.

30. (Original) A system for error correction coding data wirelessly transmitted through multiple transmission channels, the system comprising:

means for receiving a plurality of data streams for transmission through spatially separate antennae;

means for selecting at least one bit from each of a plurality of the data streams forming a first bit grouping;

means for selecting at least one other bit from each of the plurality of the data streams forming a second bit grouping;

means for coding the first bit grouping;

means for coding the second bit grouping; and

means for transmitting the coded first bit grouping and the coded second bit grouping.